

Replaced by Article 19
Recd on 03 Dec 04

Claims

1. An emergency brake system for a vehicle comprising a first brake means for braking the rotation of a wheel, a second brake means for braking the vehicle by increasing frictional resistance with a road surface, an obstacle detector means for detecting an obstacle existing in an advancing direction, and a collision determination means for determining whether or not the vehicle is going to crash into an obstacle detected by said obstacle detector means by a vehicle speed and deceleration detector means, wherein when it is determined that the vehicle is going to crash by said collision determination means, said second brake means is actuated.
2. An emergency brake system for a vehicle as claimed in claim 1 wherein a hard braking detector means for detecting the actuation of hard braking by said first brake means or actuation requirements for hard braking by a driver is provided, and wherein if said actuation of hard braking or said actuation requirements are detected, determination is made on whether or not the vehicle is going to crash by said collision determination means.
3. An emergency brake system for a vehicle as claimed in claim 1 further comprising a hard braking booster means for automatically boosting hard braking carried out by a driver through said first brake means, wherein if it is determined that the vehicle is crashing into an obstacle by said collision determination means, said hard braking booster means is actuated, and if it is determined that the vehicle is still going to crash into the obstacle, said second brake means is actuated.
4. An emergency brake system for a vehicle as claimed in any of claims 1-3 wherein said second brake means comprises a plurality of different

types of brake means, wherein a road surface condition detector means for detecting the condition of a road surface is provided, and wherein according to the road surface condition detected by the road surface condition detector means, said second brake means is selected from among the plurality of different types of brake means.

5. An emergency brake system for a vehicle as claimed in any of claims 1-4 wherein after the second brake means have been actuated, if hard braking by said first brake means is not actuated, and determination by said collision determination means is made that crashing of the vehicle into the obstacle will be avoided or if determination is made that the vehicle is at a stop, actuation of said second brake means is stopped.

6. An emergency brake system for a vehicle as claimed in any of claims 1-5 wherein an alarm sound is produced when said second brake means is actuated.